

## Claim Listing

1-30. Cancelled.

31. (New) Detector for detecting movements, comprising:

at least one moveable exciter magnet (EM);

only one associated ferromagnetic element (FE) having Weiss regions and Bloch walls;

at least one induction element (SP, SP1) associated with the ferromagnetic element (FE);

and,

at least one sensor element (SE, SP2 / HS ) for detecting the polarity and the position of the exciter magnet (EM) representing the direction of movement of said exciter magnet (EM) at the time ( $T_s$ ) that the magnetization of the ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM).

32. (New) Detector according to Claim 31 adapted for detecting rotational movement, comprising: at least one rotatable exciter magnet (EM); only one associated ferromagnetic element (FE) having Weiss regions and Bloch walls associated with the ferromagnetic element (FE); and, at least one induction element (SP, SP1) and at least one sensor element (SE, SP2 / HS ) for detecting the polarity and the position of the rotatable exciter magnet (EM) representing the direction of rotational movement of said exciter magnet (EM) at the time ( $T_{s1}$ ) that the magnetization of the ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM).

33. Detector according to Claim 31 adapted for detecting rotational movements, comprising: a counter (36); at least one rotatable exciter magnet (EM); only one associated ferromagnetic element (EM) including Weiss regions and Bloch walls; and, at least one induction

element (SP, SP1) and at least one sensor element (SE, SP2 /HS) associated with said ferromagnetic element (FE) for detecting the polarity and the position of the exciter magnet (EM) representing the direction of the rotational movement of said exciter magnet (EM) at the time ( $T_s$ ), that the magnetization of the ferromagnetic element (FE) is triggered and remagnetized by said exciter magnet (EM), whereby the counter (36) is part of an associated evaluation circuit comprising a nonvolatile memory unit (36) and a capacitor ( C ) .

34. Detector according to Claim 33 adapted for detecting rotational movements, comprising: the complete set of information available at the time ( $T_s$ ) for determining the polarity and direction of movement of the exciter magnet (EM) comprises: data in the nonvolatile memory (36) and the signals at output terminals (22, 23) of the induction coils (SP1, SP2) or the signals at output terminals (22) of the induction coil (SP) and at output terminals (24) of the Hall sensor (HS).

35. Detector according to Claim 31, characterized in that the ferromagnetic element (FE) is a pulse wire.

36. Detector according to Claims 31, characterized in that the induction element (SP or SP1) is a coil and used to measure the magnetization direction and, in conjunction with the sensor element (SE), to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered.

37. Detector according to Claim 31, characterized in that the sensor element (SE) is a second induction coil (SP2) wound over the ferromagnetic element (FE) and is used to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered.

38. Detector according to Claim 31, characterized in that the sensor element (SE) is a Hall sensor (HS) for measuring the polarity or determining the position of the exciter magnet (EM).

39. Detector according to Claim 31, characterized in that the ferromagnetic element (FE) has an axis, which is mounted parallel to the direction of movement of the exciter magnet (EM).

40. Detector according to Claim 31, characterized in that the ferromagnetic elements (FE) has an axis, which is mounted perpendicular to the direction of movement of the exciter magnet (EM).

41. Detector according to Claim 31, characterized in that at least one ferromagnetic flux conducting piece (FL1 and/or FL2) for guiding and/or bundling the flux is assigned to the ferromagnetic element (FE).

42. Detector according to Claim 31, characterized in that the energy supply for the evaluation circuit (30) is taken from the signals sent by the induction coils (SP, SP1, SP2) used to detect position and/or polarity.

43. Detector according to Claim 34, characterized in that the nonvolatile memory unit (36) is a FRAM and/or an EEPROM unit.

44. Detector according to Claim 31, characterized in that one of the coils (SP/SP1) can be supplied with an external current pulse, which serves either to initiate the biasing of the ferromagnetic element (FE) or to continue that biasing.